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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,985	12/31/2001	Xingwu Wang	XW-33	3623

37282 7590 07/13/2004

HOWARD J. GREENWALD P.C.  
349 W. COMMERCIAL STREET SUITE 2490  
EAST ROCHESTER, NY 14445-2408

EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/035,985	<b>Applicant(s)</b> WANG ET AL.	
	<b>Examiner</b> Dah-Wei D Yuan	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**IMPLANTABLE FUEL CELL**

Examiner: Yuan

S.N. 10/035,985

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June 30, 2004

***Detailed Action***

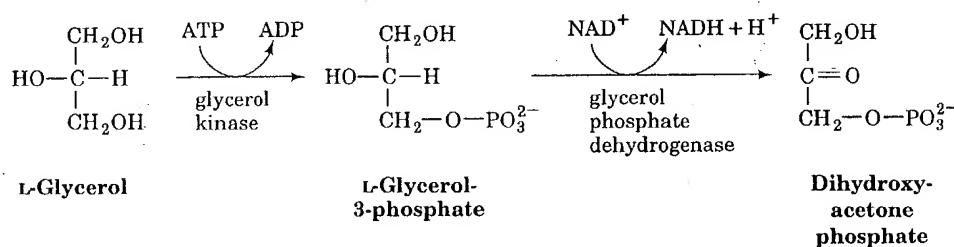
1. The Applicant's Appeal Brief filed on May 10, 2004 was received. Claims 4,5 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on February 12, 2004.

***Claim Rejections - 35 USC § 112***

1. Applicant's amendment to cancel claims 4,5 in the Paper filed May 6, 2004 renders the previous claim rejections under 35 U.S.C. 112, first paragraph, on claims 1-18 moot. As result, the cancellation removes issues from the previous Appeal Brief filed on March 3, 2004.
2. Claims 1-3,6-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites an implantable fuel cell assembly comprising means for converting fat to glycerol and fatty acid, in which lipase enzymes is the preferred embodiment that catalyzes the hydrolysis of fats to glycerol and fatty acids. See instant disclosure, page 7, line 18 to page 8, line 2. However, it is well known in the art that enzymatic reaction *in vivo* is a complex process which depends on many factors, including but not limited to temperature, pH and salt

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concentration. From the viewpoint of lipid metabolism, lipase enzyme, as are many proteins, is rapidly denatured. It is unclear how the lipase enzymes can effectively be replenished and/or regenerated to retain the conversion process. The disclosure does not discuss or suggest the source of the lipase enzymes and how the degradation of the enzymes might affect the process. Moreover, fatty acids is known to form micelles that act as detergents to disrupt protein and membrane structure and would therefore be toxic to humans if the concentration is higher than  $10^{-6}$  M. The disclosure does not elaborate or even mention the potential catastrophic events to the recipient of such implant. This raises doubts about the feasibility and practicality for the use of fatty acid as an intermediate product in the production of hydrogen fuel. More importantly, it is known in the art that glycerol can be broken down to become dihydroxyacetone phosphate and hydrogen proton ( $H^+$ ) as shown in the reaction below.



In contrary, the instant disclosure teaches the use of molecular hydrogen ( $H_2$ ) as fuel to produce electricity as recited in claim 1 and Figure 1. The difference in describing the chemical and biological characteristic of the fuel does not enable a person of ordinary skill in the art to make and use the claimed invention. See "Biochemistry" by Donald Voet and Judith Voet, John Wiley & Sons (1990), pp. 618-621.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
June 30, 2004

A handwritten signature in cursive script, reading "Dah-Wei D. Yuan".